

# Pediatric Tracheostomy Emergency Management Algorithm

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### Introduction

- It is important that health care providers and emergency services personnel know what to do in a tracheostomy emergency. These high-risk and low-incidence events have led to preventable harm and/or death.
- Minimal resources exist to help in decision making when presented with a pediatric tracheostomy emergency.
- We aimed to create a decision-making aid that would reduce the time it took providers to properly address a tracheostomy emergency.

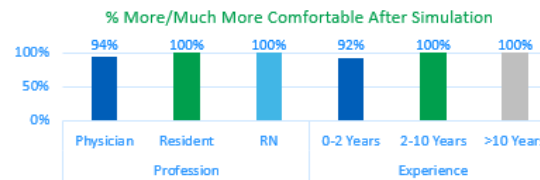
### Methods

- Randomized controlled study.
- Physicians and nurses engaged in 3 high-fidelity simulation scenarios of tracheostomy emergencies.
- Intervention group was given the Tracheostomy Emergency Algorithm to use as a resource in these scenarios. All groups were presented with the same scenarios in the same order.
- Pre and post evaluations regarding **comfort level** and **skill knowledge** were used as well as video recording for timing of **correct actions**.
- To see Tracheostomy Emergency Algorithm, scan QR code.



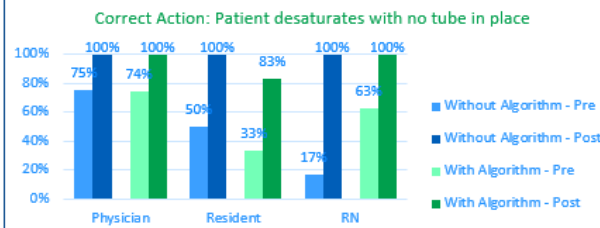
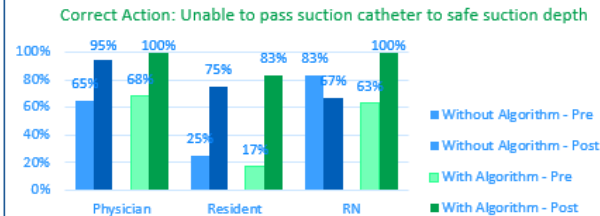
### Results

#### Comfort Level by Profession and Experience Level



All participants, regardless of profession or years of experience, answered that they were more or much more comfortable after the simulation scenarios with and without use of the algorithm.

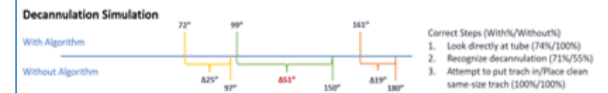
#### Skill Knowledge Questions Pre/Post by Profession



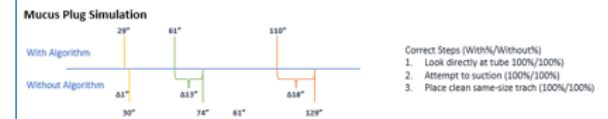
Pre/Post survey questions showed an overall increase in knowledge after simulation scenarios with and without the algorithm. Comfort level and knowledge increases suggest that the simulation scenarios, as well as the use of algorithm, were beneficial to learners.

### Results (Cont.)

#### Timing of Correct Action in Simulation Scenarios



Participants using the algorithm recognized decannulation 51 seconds faster than the control group in the first scenario they were presented with. This suggests that this tool was particularly useful to those not exposed to tracheostomy emergencies recently. This amount of time saved could have significant neurological impact for a patient dependent on their tracheostomy tube to breathe.



### Conclusions

- The use of a tracheostomy emergency management algorithm increased comfort level and skill knowledge as well as aided participants in taking correct actions more quickly.
- When faced with a high-risk, low-incidence event, it is helpful to have a decision-making aid to guide actions.
- We are expanding this algorithm to the [PedsGuide App](#) which helps health care providers and emergency services personnel make diagnostic and/or treatment decisions for children facing acute illness.
- Scan QR code to download [PedsGuide App](#).



7<sup>th</sup> International Tracheostomy Symposium, October 21, 2023, Baltimore, Maryland

